

REMARKS

Claims 16-22, 25-35, and 39-42 are pending in the present application. Claims 41 and 42 has been added. Support for the new claims can be found in the specification, *inter alia*, at page 2, lines 11-16, the original claims, and Figs. 1 and 3. Accordingly, applicants respectfully submit that no new matter has been added.

Based on the above amendments and following remarks, applicants respectfully request reconsideration of all outstanding rejections.

Claim Rejections Under 35 U.S.C. § 112, first paragraph

In the Office Action dated February 22, 2002, claims 16-22, 25-35, 39, and 40 were rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification. Applicants respectfully traverse for the following reasons.

The test for determining compliance with the written description requirement is whether the disclosure of the application as originally filed reasonably conveys to one of ordinary skill in the art that the inventors had possession at the time of filing of the claimed subject matter, rather than the presence or absence of literal support in the specification for the claim language. See Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563, 19 USPQ2d 1111, 1116 (Fed. Cir. 1991); In re Kaslow, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983). Satisfaction of the written description requirement does not require the description of claim terms to be *ipsis verbis* antecedence in the originally filed application. In re Lukach, 442 F.2d 967, 969, 169 USPQ 795, 796 (CCPA 1971).

Applicants offer the following support from the original specification that reasonably conveys to one of ordinary skill in the art that the inventors were in possession at the time of filing of the claimed “rotatable optical system for image rotation.”

First, as stated at page 2 of the specification, see lines 1-5, a problem existed in the prior art where an object being scanned had to be rotated and displaced. (“However, the rotation and, if appropriate, simultaneous movement of the object leads to a complex movement entailing a considerable outlay on setting.”)

Second, in order to overcome this problem, applicants' object was stated as follows: "The present invention is based on the object, therefore, of configuring and developing a microscope, in particular, a confocal microscope or confocal laser scanning microscope, in such a way that an object can be measured from a plurality of angular positions whilst avoiding rotation of the object to be measured." Specification, page 2, lines 11-16 (emphasis added). As further stated at page 2, line 29 – page 3, line 4, "Rather, optical rotation is now performed, namely by means of an optical arrangement for image rotation, said optical arrangement being provided in the beam path of the microscope, with the result that the object itself remains positioned in an unchanged manner." Moreover, the Patent Office entered applicants' amendment (dated September 22, 2000) of the original title of the invention to "Microscope For Measuring An Object From A Plurality Of Angular Positions."

Third, when describing one of the embodiments of the invention, applicants stated that: "This configuration is advantageous in so far as here there is a substantially smaller degree of angular sensitivity, as exists when the rotor is arranged between the tube lens and objective." Specification, page 4, lines 16-19 (emphasis added). This description indicates that the "rotor" is applicants' own terminology for the rotatable optical arrangement disposed between the tube lens and the objective, as is shown in Fig. 1 (where optical arrangement 2 is disposed between tube lens 6 and objective 4). The reference to "angular sensitivity" refers to the stated object, which is to measure an object from "a plurality of angular positions..." See specification, page 2, line 15. Clearly, if the optical arrangement for image rotation is fixed, as alleged by the patent office, applicants could not measure the object from a plurality of angular positions without moving the object.

Fourth, applicants state at page 4, lines 27-29: "...a separate adjustment apparatus could be provided for the purpose of minimizing the beam offset during rotation of the arrangement." The "arrangement" referred to in the above passage is the "optical arrangement for image rotation," which is referred to throughout the specification as the "arrangement". See e.g., page 6, line 9, referring to the "arrangement 2."

Fifth, applicants' original claim 14, now cancelled, recites a "Microscope ... characterized in that an adjusting apparatus is provided for the purpose of minimizing the

beam offset during rotation.” (emphasis supplied). Clearly, applicants were in possession of not only a rotatable optical system for image rotation, but also an adjustment mechanism to minimize beam offset during rotation of the rotatable optical system.

Accordingly, applicants respectfully submit that the original specification provides sufficient support to reasonably convey to one of ordinary skill in the art that they were in possession of a “rotatable optical system for image rotation” as claimed.

In response to arguments of the Patent Office at pages 2 and 3 of the office action, applicants respectfully submit that the specification not only describes a “rotatable optical system for image rotation” as claimed, but it further clearly conveys sufficient structure (the rotatable optical arrangement 2 can be disposed, in one embodiment, between the tube lens and the objective) for one of ordinary skill in the art and it conveys that rotation of the optical arrangement 2 is done intentionally in order to measure the object from a plurality of angular positions whilst avoiding rotation of the object to be measured.

Accordingly, applicants respectfully request withdrawal of the rejections under 112, first paragraph.

Claim Rejections Under 35 U.S.C. § 103(a)

In the Office Action, claims 16-18, 20-22, 25, and 26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Horikawa (USP 4,734,578) in view of Dewald et al. (USP 5,365,288). Also, claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horikawa in view of Dewald et al. as applied to claims 16-18, 20-22, 25, and 26 above, and further in view of Wasmund et al. (USP 4,181,436). Claim 27 was rejected under 35 U.S.C. 103(a) as being unpatentable over Horikawa in view of Dewald et al., in further view of Yano. Claim 28 was rejected under 35 U.S.C. 103(a) as being unpatentable over Horikawa in view of Dewald et al., in further view of Kapitza. Claims 29-31 were rejected under 35 U.S.C. 103(a) as being unpatentable over Horikawa in view of Kleinberg (EP 0 464 236). Claim 32 was rejected under 35 U.S.C. 103(a) as being unpatentable over Horikawa in view of Kleinberg, in further view of Wasmund. Claims 33-35 were rejected under 35 U.S.C. 103(a) as being unpatentable over Horikawa in view of Kleinberg and in further view of Official Notice. Claim 39 was rejected under 35 U.S.C. 103(a) as being unpatentable over Horikawa in view of Kleinberg, in further view of Yano. Claim 40 was rejected under 35

U.S.C. 103(a) as being unpatentable over Horikawa in view of Kleinberg, in further view of Kapitza. Applicants respectfully traverse these rejections for the following reasons.

1. The claimed invention is patentable over the Horikawa/Dewald combination

Concerning the rejection of claims 16-22, 25-28, a prima facie case of obviousness has not been established for the following reasons.

Applicants agree with the patent office that Horikawa fails to teach or suggest “a rotatable optical system for image rotation.” A scanning microscope is shown in Horikawa’s Fig. 8, in which mirrors 56 and 59 are mounted on galvanometric mounts so that an object can be scanned in the X and Y directions. See Horikawa, col. 8, lines 49-55. Nowhere in the Horikawa reference is it mentioned that the image of the object is rotated. Thus, Horikawa does not teach or suggest a rotatable optical system for image rotation disposed in the path of rays of the confocal microscope.

In contrast to the claimed invention, Horikawa teaches away from rotation of the image as claimed. Instead, Horikawa teaches the use of rotatable detectors (see e.g. Horikawa, Fig. 17). which allows free alteration of the orientation of differentiation of the differential observation image (see col. 14, lines 29-31) without having to rotate the image anywhere in the path of rays of the confocal microscope. Accordingly, if one were to place a rotatable optical system for image rotation anywhere in Horikawa’s device, let alone in precisely the positions claimed by applicants, such an addition would be contrary to the principle of operation of Horikawa, which relies on rotatable detectors to provide differentiation of the differential image for observation. See M.P.E.P. 2143.01 (“The Proposed Modification Cannot Render The Prior Art Unsatisfactory For Its Intended Purpose” and “The Proposed Modification Cannot Change The Principle Of Operation Of A Reference.”)

The Dewald reference does not overcome the deficiencies of Horikawa because Dewald fails to teach or suggest a rotatable optical system for image rotation for a microscope or microscopic applications. Thus, it is unlikely that one skilled in the art would look to a macroscopic projection system to modify a confocal microscope in the manner suggested by the Patent Office. For example, as stated previously by applicants,

Dewald is not directed to confocal microscopes, but instead is directed to light projection systems, such as TV or video systems. This argument was not addressed by the Patent Office in the Office Action dated February 22, 2002. Applicants now re-state, more explicitly, that Dewald is not an analogous reference because (1) it is directed to a different field of endeavor (macroscopic image projection, as opposed to confocal microscopy), and (2) Dewald is not reasonably pertinent to the particular problem with which the inventor is concerned. See MPEP 2141.01(a).

As discussed above (see page 2 of the present application), an object of the invention is to permit measurements to be taken at a plurality of angular positions without rotating the object to be measured. In contrast, the Dewald device is not examining or measuring anything, but instead is projecting an image for a laser video projector. Furthermore, as pointed out in the Office Action, at page 4, Dewald suggests an image projection whereby the image is maintained right side up. This suggestion teaches away from applicant's explicitly stated object, to measure an object at a plurality of angular positions with a confocal microscope. The present invention, in contrast to the Patent Office's position, does not have to solve the problem of keeping an image right side up. In the present invention, since the object observed is measured from a plurality of angular positions, it is clear that the image of the object is rotated to any desired angle. Since Dewald discloses a projection system which requires the image to be right side up, a skilled artisan would not take Dewald in to account when trying to solve the problem of measurement or comparison of specific features in an image of a microscopic sample.

Thus, the Patent Office's statement (page 4) that "It would have been obvious [to combine Horikawa and Dewald] in order to compensate for the horizontal movement of the image by the scanning mirror and keep the image right side up so a sample is more easily viewed by a viewer looking through the ocular" is far afield from both applicants' stated objective and applicants' claimed solution, as well as even Horikawa's stated objectives discussed above. Further, applicants respectfully disagree with the Patent Office's statement (page 8) that "Horikawa also has a rotating mirror with horizontal movement ... and an observer ... viewing an image that will not be right side up because of said horizontal movement of the rotating mirror." Applicants respectfully submit that this statement is incorrect because Horikawa states at col. 8, lines 62 et seq. "Here [describing

the scanning operation of Fig. 8], in case it is intended to perform a scanning type observation, a prism 64 for visual observation and also a beam splitter 65 intended for epi-illumination are omitted from the optical path." (emphasis added). Thus, the alleged motivation supplied by the Patent Office is not supported by the Horikawa reference itself.

Moreover, there is no evidence that (1) the macroscopic mirror system 10 of Dewald is capable of being incorporated into Horikawa's device and (2) that one of ordinary skill in the art would place Dewald's mirror system 10 between the alleged scanning lens 60 and the scanning mirror 59.

Thus, a person skilled in the art of confocal microscopes would not consider the Dewald reference in combination with Horikawa to produce applicants' claimed invention because neither Horikawa nor Dewald provides any motivation or suggestion to insert an image mover in the beam path of the confocal microscope. See e.g. *In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) ("Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references."); *In re Dance*, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998) (there must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by the applicant). Further, neither reference suggests that any additional positive effect would be achieved by doing so.

Applicants incorporate their remarks of December 21, 2001, concerning the additional references cited by the Patent Office (Wasmund, Kapitza, and Yano).

Thus, for at least the reasons mentioned above, applicants respectfully submit that pending claims 16-23 and 25-28 are allowable over the references of record.

2. The claimed invention is patentable over the Horikawa/Kleinberg combination

Concerning the rejection of claims 29-40, a prima facie case of obviousness has not been established for the following reasons.

The remarks concerning the Horikawa reference are incorporated from above. In summary, it is not likely that a skilled artisan would look to incorporate any rotatable optical system for image rotation in the Horikawa device because Horikawa teaches away from such an additional element: measurements are performed based on rotatable detectors, thus obviating any need to rotate the image.

The Kleinberg EP '236 reference¹ does not overcome the deficiencies of Horikawa. For at least the same reasons as discussed above with respect to the Dewald reference, there is no teaching or suggestion (or even the remotest need) in the cited references to modify the Horikawa device in order to include an optical system for image rotation. Kleinberg teaches using a pair of dove prisms 276 and 278 to "compensate for the image rotation which occurs when the primary and secondary viewing stations are rotated relative to one another." Kleinberg EP '236, col. 10, lines 29-31. The Kleinberg device does not rotate the image for both viewers, rather it compensates for image rotation so that both viewers are viewing at the same orientation. Thus, Kleinberg is not directed to measuring an object with a confocal microscope from a plurality of angular positions without moving the object. As Horikawa does not address any need for compensating for image rotation that may occur between two viewing stations, it is very unlikely one of ordinary skill in the art would modify the Horikawa device with Kleinberg's rotatable prisms.

Moreover, there is no evidence that one of ordinary skill in the art would place Kleinberg's prism(s) between the alleged objective 62 and the alleged tube lens 61 of Horikawa. As with the Horikawa/Dewald combination, such a modification would be contrary to the stated principle of operation of Horikawa.

Further, neither Kleinberg nor Horikawa address the same problem as addressed by applicant, namely that if a sample is rotated it will also be simultaneously displaced (e.g., if the object or the slide supporting the object is moved), thus making it highly complex to ensure that the object is rotated about its center (the only way to possibly avoid simultaneous displacement), which leads to complex movement entailing a considerable

¹ Due to the fact that the Kleinberg reference was incorrectly identified in the February 22, 2002 Office Action (as EP '232, not EP '236), applicants recently discovered

outlay on setting. See e.g. specification, page 2, lines 1-5. In contrast, Kleinberg addresses a different problem, namely allowing two surgeons to simultaneously view a sample at different viewing stations, while the sample is viewed at the same orientation.

Applicants incorporate their remarks of December 21, 2001, concerning the additional references cited by the Patent Office (Wasmund, Kapitza, and Yano).

Thus, for at least the reasons mentioned above, applicants respectfully submit that pending claims 29-40 are allowable over the references of record.

In addition, for at least the reasons expressed above, new claims 41 and 42 are patentable over the cited references.

that the Kleinberg EP '236 reference has a U.S. counterpart patent, US 5,052,789, a copy of which is submitted herewith in an Information Disclosure Statement.

Conclusion

If applicants have not accounted for any fees required by this Amendment, the Commissioner is hereby authorized to charge to our Deposit Account No. 19-0741. If applicants have not accounted for a required extension of time under 37 C.F.R. § 1.136, that extension is requested and the corresponding fee should be charged to our Deposit Account.

The Examiner should feel free to contact the undersigned at (202) 672-5592, if there is anything the undersigned can do to assist the Examiner or expedite prosecution of the application.

Respectfully submitted,

By _____



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Date May 22, 2002

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